REMARKS

Claims 1-20 and 30-36 remain pending.

In the Office Action, the Examiner rejected claims 30-36 under 35 U.S.C. § 102(b) as being anticipated by Best et al. (US Pat. No. 4,876,617); rejected claims 1, 2, 4, 5, 9, 10, 12, 13, 16, and 17 under 35 U.S.C. § 103(a) as being unpatentable over Neubauer et al. (US Pat. No. 6,584,138) in view of Best et al.; rejected claims 6, 14, and 15 under 35 U.S.C. § 103(a) as being unpatentable over Neubauer et al. in view of Best et al., and further in view of Boney et al. ("Digital Watermarks for Audio Signals" IEEE Conf on Multimedia Computing, June, 1996); rejected claims 3 and 11 under 35 U.S.C. § 103(a) as being unpatentable over Neubauer et al. in view of Best et al., and further in view of Bassini et al. (US Pat. No. 4,035,838); rejected claims 7, 8, 18, and 19 under 35 U.S.C. § 103(a) as being unpatentable over Neubauer et al.; and rejected claim 20 under 35 U.S.C. § 103(a) as being unpatentable over Neubauer et al. in view of Boney et al.

Claims 30-36:

Applicant respectfully traverses the § 102(b) rejection of claims 30-33 over Best et al. Claims 30-33, as amended, require a method including, *inter alia*, "removing a range of frequencies in an audio signal to produce a notched audio signal; generating a masking signal that falls entirely within one portion of the range of frequencies; and generating a data signal that falls entirely within the range of frequencies and apart from the one portion." Best et al. fails to disclose all limitations of the methods of claims 30-33.

Page 2 of the Office Action reads the claimed generating a masking signal on the operation of elements 10 and 11 in Fig. 1 of Best et al. and reads the claimed generating a data signal on the operation of elements 15 and 16. Although not explicitly called out in the Office Action[1], the claimed "range of frequencies" in the "removing" limitation must correspond to

[1] The Examiner is respectfully requested to read the "removing . . ." limitation of claim 30 on something more specific than merely "Fig. 1."

notches around 2883 Hz and 3417 Hz, because the two notch filters in the upper branch of Fig. 1 are the only elements that "remov[e] a range of frequencies" as set forth in claim 30.

Under this interpretation, Fig. 1 of Best et al. fails to disclose "generating a masking signal that falls entirely within one portion of the range of frequencies," because filters 10 and 11 pass a signal spanning 1-6 kHz. Such a broad-spectrum signal does not fall "entirely within" one portion of the notches around 2883 Hz and 3417 Hz that correspond to the claimed "range of frequencies." Hence, Best et al. fails to disclose the "generating a masking signal" limitation of claim 30 as amended.

Further, Best et al. fails to disclose "generating a data signal that falls entirely within the range of frequencies and apart from the one portion." because the bands around 2883 Hz and 3417 Hz passed by filters 15 and 16 are not "apart from" the 1-6 kHz signal passed by filters 10 and 11. Rather, the 1-6 kHz signal passed by filters 10 and 11 overlaps in frequency the bands around 2883 Hz and 3417 Hz passed by filters 15 and 16. Thus, Best et al. fails to disclose the "generating a data signal" limitation of claim 30 as amended.

Because Best et al. fails to disclose all limitations of claim 30 as amended, the § 102(b) rejection of claims 30-33 is improper and should be withdrawn.

Applicant respectfully traverses the § 102(b) rejection of claims 34-36 over Best et al. Claims 34-36 each require a method including, *inter alia*, "separating the masking signal and the data signal in the frequency range from the audio information outside the frequency range; and filtering the data signal in the frequency range from the masking signal." Best et al. fails to disclose all limitations of the methods of claims 34-36.

As an initial matter, claim 34 has only been read on Figs. 4-6, with out further elaboration. This is insufficient to make a *prima facie* case of anticipation, because no evidence has been provided that the claimed limitations are actually in these figures. Rather, it amounts to an unsupported allegation that these figures disclose the limitations of the claims, and is frankly unhelpful. Applicant respectfully reminds the Examiner that under 37 C.F.R. § 104(c)(2) "the particular part [of the reference] relied on must be designated as nearly as practicable," and

respectfully requests that, in any subsequent actions containing art rejections, the claim limitations be read upon particular components of the reference(s).

Further, assuming purely for the sake of argument that one of the band-pass filters in Fig. 4 of Best et al. separates audio information from a masking signal and a data signal, the remaining portions of Fig. 4 do not disclose "filtering the data signal in the frequency range from the masking signal" as set forth in claims 34-36. That is, there is no filter after either of the 2883Hz or the 3417 Hz bandpass filters in Fig. 4 that could perform this additional "filtering the data signal . . . from the masking signal" function. Thus, Best et al. fails to disclose the "filtering the data signal" limitation of claims 34-36.

Because Best et al. fails to disclose all limitations of claim 34-36, the § 102(b) rejection of these claims is improper and should be withdrawn.

Claims 1-6 and 9-17:

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. See M.P.E.P. § 2143.

A *prima facie* case of obviousness has not been established for claims 1, 2, 4, 5, 10, 12, 13, 16, and 17, because one of ordinary skill would not have been motivated to add Best et al. to Neubauer et al. The mere citation of some alleged advantage of Best et al. does not, in and of itself, provide motivation to add its teachings, absent some corresponding need or deficiency in Neubauer et al. In this case, no evidence has been shown that Neubauer et al. has a problem with audio "break[ing] through into the decoding circuits" as implied on page 4 of the Office Action. To the contrary, Neubauer et al. asserts an advantage that its inserted information is imperceptible to the human ear, even in a music signal. See Neubauer et al., col. 4, lines 36-54. Because no evidence of any need or deficiency in Neubauer et al. that would have motivated the

addition of Best et al. has been provided, a *prima facie* case of obviousness has not been established for claims 1, 2, 4, 5, 10, 12, 13, 16, and 17.

A *prima facie* case of obviousness also has not been established, because at least Neubauer et al. teaches away from the proposed combination. See M.P.E.P. § 2145(X)(D) ("proposed modification cannot render the prior art unsatisfactory for its intended purpose or change the principle of operation of a reference"). Neubauer et al. appears to disclose a spread-spectrum technique for inserting data, to the exclusion of so-called notch filter techniques. See, for example, col. 2, lines 21-31, which distinguishes the scheme of Neubauer et al. from coding by "interleaved frequency lines." See also, col. 4, lines 39-43, which states, "A further advantage of the present invention consists in that spread-spectrum modulation is employed in which the *information or data signal is spread to the entire transmission band . . .*" (emphasis added). Hence, at least Neubauer et al. teaches away from the proposed addition of notch filters from Best et al.

Also, to add a notched filter form Best et al. would necessarily change the principles of operation of the Neubauer et al. See again, col. 4, lines 39-43 of Neubauer et al. which states that the data is spread to the "entire transmission band." Hence, the references teach away from the proposed combination. A *prima facie* case of obviousness has not been established for claims 1, 2, 4, 5, 10, 12, 13, 16, and 17 for this additional reason.

Regarding the § 103 rejection of dependent claims 3, 6, 11, 14, 15, and 20, the addition of Boney et al. (claims 6, 14, and 15) and Bassini et al. (claims 3 and 11), even if it were proper, fails to cure the deficiencies noted above. There is simply no motivation or suggestion to combine Neubauer et al. and Best et al. in the first place. Thus, a *prima facie* case of obviousness has not been established for dependent claims 3, 6, 11, 14, and 15, because of lack of motivation or suggestion to combine the primary and secondary references.

Claims 7, 8, and 18-20:

Applicant respectfully traverses the § 103(a) rejection of claims 7, 8, 18, and 19 over Neubauer et al. Independent claims 7 and 18 require a method and system including, *inter alia*,

"filter[ing] the enhanced acoustic transmission signal to isolate the modulated carrier signal from the masking signal and the audio signal of the enhanced acoustic transmission signal; and demodulat[ing] the modulated carrier signal to extract the data signal from the modulated carrier signal." A *prima facie* case of obviousness has not been established, because Neubauer et al. fails to teach or suggest all elements of the method and system of claims 7 and 18.

Regarding claims 7 and 18, pages 7 and 8 of the Office Action read the claimed filtering on low-pass filter 402 and read the claimed demodulating on matched FIR filter 408 of Neubauer et al.

Claims 7 and 18 each require filter[ing] the enhanced acoustic transmission signal to isolate the modulated carrier signal from both the masking signal and the audio signal. Low-pass filter 402, by contrast, does not isolate the modulated carrier signal (i.e., s(l) output from block 110 according to the interpretation of claims 1 and 9) from either the masking signal (i.e., g(l) according to page 4 of the Office Action) or the audio signal (i.e., music signal n(k)). Because col. 13, line 12, gives the cutoff frequency as 6 kHz, significant portions of the music signal n(k) will still be present after filter 402. Hence, Neubauer et al. as applied fails to teach or suggest at least isolating the modulated carrier signal from the audio signal as set forth in claims 7 and 18.

Also, col. 11, lines 46-50, of Neubauer et al. discloses that the bandwidth of the noise signal g(l) output from block 106 is also 6 kHz. Hence, filter 402 also fails to isolate the modulated carrier signal (i.e., s(l)) from the masking signal (i.e., g(l)), because they are both present in the same, unfiltered 6kHz bandwidth. Thus, Neubauer et al. as applied fails to teach or suggest at least filter[ing] the enhanced acoustic transmission signal to isolate the modulated carrier signal from both the masking signal and the audio signal, and the rejection of claims 7 and 18 is improper.

The Examiner may note that the preceding two paragraphs appeared, in substance, in the response to the prior Office Action. Because the identical reading on Neubauer et al. was repeated, so is the traversal thereof. Hence, at least this argument is not "moot" as alleged on page 2 of the Office Action, the "new" ground of rejection notwithstanding.

Further, FIR filter 408 does not demodulate the claimed "modulated carrier signal." To

be sure, this filter 408 demodulates a spread-spectum signal, but both claims 7 and 18 define the modulated carrier signal as "a modulated carrier signal formed by modulating a carrier signal at a carrier frequency with a data signal representing data" in their respective preambles. As explained previously, Neubauer et al. discloses a spread-spectrum technique, and does not teach or suggest modulating at "a carrier frequency." It should be explained in this regard that the cosine function in Fig. 1 is merely to remove an average, or DC, component to the pseudo-random modulated sequence (see col. 12, lines 1-24). Hence, Neubauer et al. does not teach or suggest "demodulat[ing] the modulated carrier signal" that was "formed by modulating a carrier signal at a carrier frequency" as required by the claims.

A *prima facie* case of obviousness has not been established for claims 7, 8, 18, and 19 for at least these reasons.

Regarding the § 103 rejection of dependent claim 20, the addition of Boney et al., even if it were proper, fails to cure the deficiencies of Neubauer et al. noted above. No allegation or proof has been provided that Boney et al. teaches or suggests the missing elements from claims 7 and 18 above. Thus, a *prima facie* case of obviousness has not been established for dependent claim 20, because the references as combined fail to teach or suggest all claimed elements.

Reconsideration and allowance of pending claims 1-20 and 30-36 are respectfully requested.

In the event that any outstanding matters remain in this application, Applicant requests that the Examiner contact Alan Pedersen-Giles, attorney for Applicant, at the number below to discuss such matters.

To the extent necessary, a petition for an extension of time under 37 C.F.R. § 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account No. 50-0221 and please credit any excess

fees to such deposit account.

Respectfully submitted,

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